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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/262,912	03/05/1999	TAPANI VUORINEN	30-497	1188
23117	7590	11/30/2004		
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			EXAMINER ALVO, MARC S	
			ART UNIT 1731	PAPER NUMBER

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/262,912

Applicant(s)

VUORINEN ET AL.

Examiner

Steve Alvo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-25, 27-35 and 37-41 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 21-25, 27-35 and 37-41 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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Upon further review of this case, the Notice of Allowance is withdrawn, and the following action given:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 27-28, 30-34, 39 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 91/05909.

Claims 1, 5 and 6 (page 22) of WO 91/05909 teach bleaching kraft pulp in a first chlorine dioxide bleaching step for a time of 5 minutes at a temperature of 85°C (over 70°C) at pH maintained between 6.0 and 7.5 (e.g. over 4.0 or 5.0), then adding acid to reduce the pH to 1.9 to 4.2 and bleaching in a second chlorine dioxide step for 120 minutes or more, See WO 91/05909, page 8, line 23- page 9, line 15. Claim 1 of WO 91/05909 does not teach washing or extracting the pulp between the stages. If necessary, it is known that higher temperature decrease the bleaching time required to obtain certain brightness. Thus it would have been obvious to one of ordinary skill in the art that in the first stage of WO 91/05909, when using the highest disclosed (85°C) temperature, to use the shortest reaction time (5 minutes). It would have been obvious that even higher temperatures would result in even shorter reaction times. See Tables 1-3 of WO 91/05909 for chlorine dioxide dosage of 0.5-1.5% in the first chlorine dioxide stage and 0.5 to 2.0% in the second stage. It would have been obvious to perform the bleaching

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and acid adjusting steps in inlet lines and/or reactors as such is taught by WO 91/05909, e.g. initial D step in inlet line reacted in upflow reactor and/or J or U tube, acid added to reactor and/or J or U tube outlet line and last chlorine dioxide step occurs in downflow reactor. Even if it WOP 91/05909 does not teach without washing and without extraction, the term "consisting essentially of" is open to non-material steps. These steps have not been shown to be material steps.

Claims 22-24, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 91/05909 as applied to claim 21 above, with or without VUORINEN et al or WO 96/12063.

WO 91/05909 teaches maintaining the pH during the first step between 6.0 and 7.5 (over 5.0). If WO 91/05909 doesn't teach that the chlorine dioxide does not react with the chlorine dioxide, then VUORINEN et al or WO 96/12063 teaches that hexenuronic acids react with the ene functionality of hexenuronic acid groups and that this can be prevented by converting the hexenuronic acid groups to 2-furoic plus formic acids and 5-carboxy-2-furaldehyde through acid hydrolysis. It would have been obvious to improve the brightness stability of the pulp of WO 91/05909 by removing the hexenuronic acids by performing an acid hydrolysis in the manner taught by VUORINEN et al or WO 96/12063.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 91/05909 as applied to claim 21 above, and further in view of DEVENYNS et al.

DEVENYNS et al teaches using a chelating agent after a chlorine dioxide stage to remove metal ions from the pulp prior to a peroxide bleaching stage. It would have been

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obvious if the pulp is to be further bleached with peroxide to treat the pulp with a chelating agent as taught by DEVENYNS et al.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 91/05909 with or without VUORINEN et al or WO 96/12063 as applied to claim 24 above, and further in view of HISTEAD et al.

HISTEAD et al teaches using chlorine dioxide bleaching times decrease at higher temperatures (see section on page 41 (T36) under Table I) and teaches at 80°C that a reaction time of 2 minutes can be used. It would have been obvious to use the 2 minute reaction time of HISTEAD et al for the first step of WO 91/05909.

Claims 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 91/05909 with or without VUORINEN et al or WO 96/12063 as applied to claim 35 above, and further in view of CARLES et al.

It would have been obvious to one of ordinary skill in the art to use chlorine dioxide temperatures of up to 90°C during the chlorine dioxide bleaching steps of WO 91/05909 as such is taught by CARLES et al.

Claims 33, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 91/05909 with or without VUORINEN et al or WO 96/12063 and CARLES et al as applied to claim 38 above, and further in view of HISTEAD.

HISTEAD et al teaches using chlorine dioxide bleaching times decrease at higher temperatures (see section on page 41 (T36) under Table I) and teaches at 80°C that a reaction time of 2 minutes can be used. It would have been obvious to use the 2 minute reaction time of HISTEAD et al for the first step of WO 91/05909.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Alvo whose telephone number is 571-272-1185.

The examiner can normally be reached on 6:00 AM to 2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steve Alvo
Primary Examiner
Art Unit 1731

msa